

UTV010

1 Watt, 20 Volts, Class A
UHF Television - Band IV & V

GENERAL DESCRIPTION

The UTV 010 is a COMMON EMITTER transistor capable of providing 1 Watt Peak, Class A, RF Output Power over the band 470 - 860 MHz. Gold Metalization and Diffused Ballasting are used to provide high reliability and supreme ruggedness.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 15 Watts

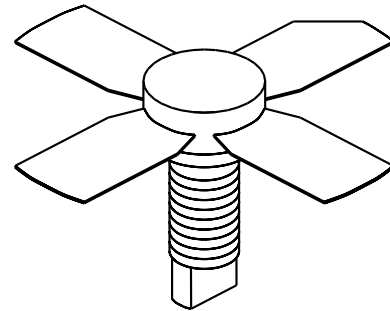
Maximum Voltage and Current

BVces	Collector to Emitter Voltage	45 Volts
BVceo	Collector to Emitter Voltage	20 Volts
BVebo	Emitter to Base Voltage	3.5 Volts
Ic	Collector Current	1.25 Amps

Maximum Temperatures

Storage Temperature	- 65 to + 150°C
Operating Junction Temperature	+ 200°C

CASE OUTLINE 55FT, STYLE 2



ELECTRICAL CHARACTERISTICS @ 25 °C

SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
P_{out}	Power Out - Pk Sync	F = 470 - 860 MHz		1.0		Watts
P_{in}	Power Input	V _{cc} = 20 Volts			0.09	Watts
P_g	Power Gain	I _c = 440 mA		11.5		dB
IMD¹	Intermodulation Distortion	P _{ref} = 1.0 Watts		-60		dB
VSWR₁	Load Mismatch Tolerance	F = 860 MHz			30:1	

L_Vceo	Collector to Emitter Breakdown	I _c = 20 mA	24			Volts
B_Vces	Collector to Base Breakdown	I _c = 10 mA	45			Volts
B_Vebo	Emitter to Base Breakdown	I _e = 1 mA	3.5			Volts
h_{FE}	Current Gain	V _{ce} = 5 V, 200 mA	15			
C_{ob}	Output Capacitance	V _{cb} = 20 V, F = 1 MHz		7.0		pF
θ_{jc}	Thermal Resistance	T _c = 25°C			12	°C/W

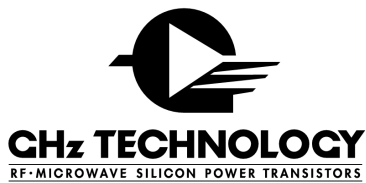
Note 1: F1=860 MHz, F2=863.5 MHz, F3=864.5 Mhz

European test method, Vision = - 8dB, Sideband= - 16dB, Sound = -7 dB

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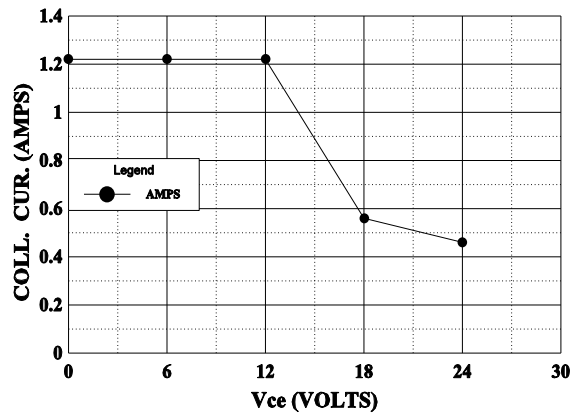
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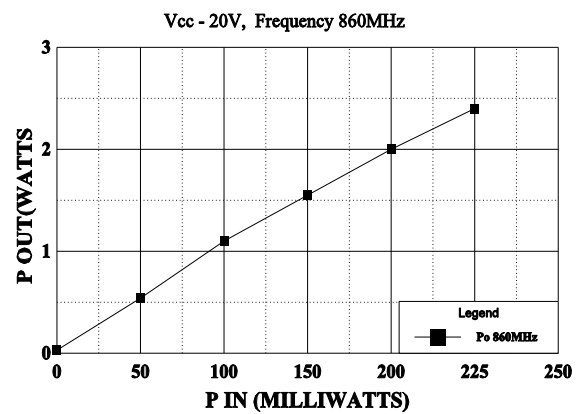


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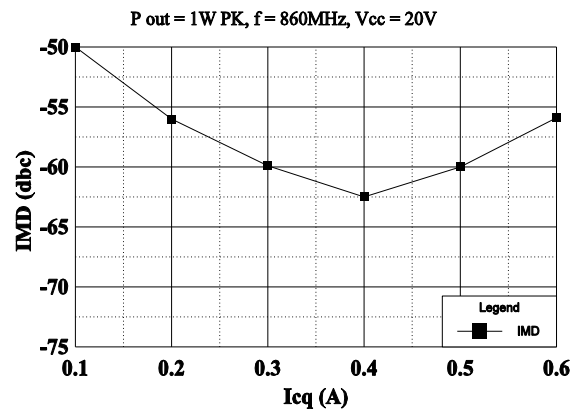
DC SAFE OPERATING AREA



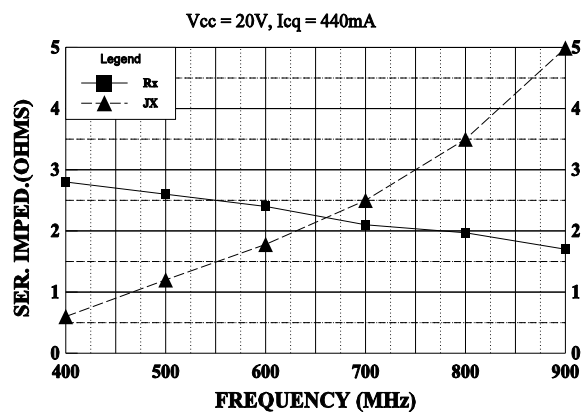
POWER OUTPUT vs POWER INPUT



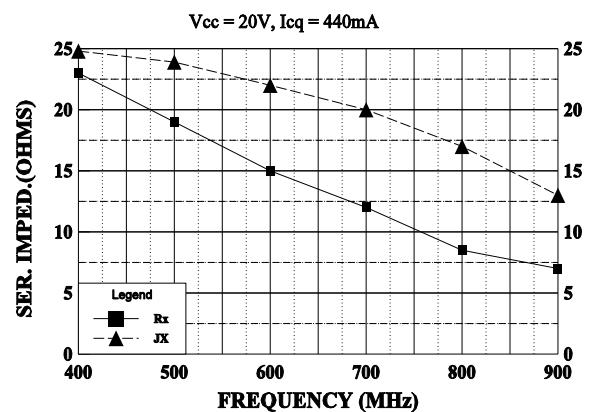
IMD vs Icq



SERIES INPUT IMPEDANCE vs FREQUENCY

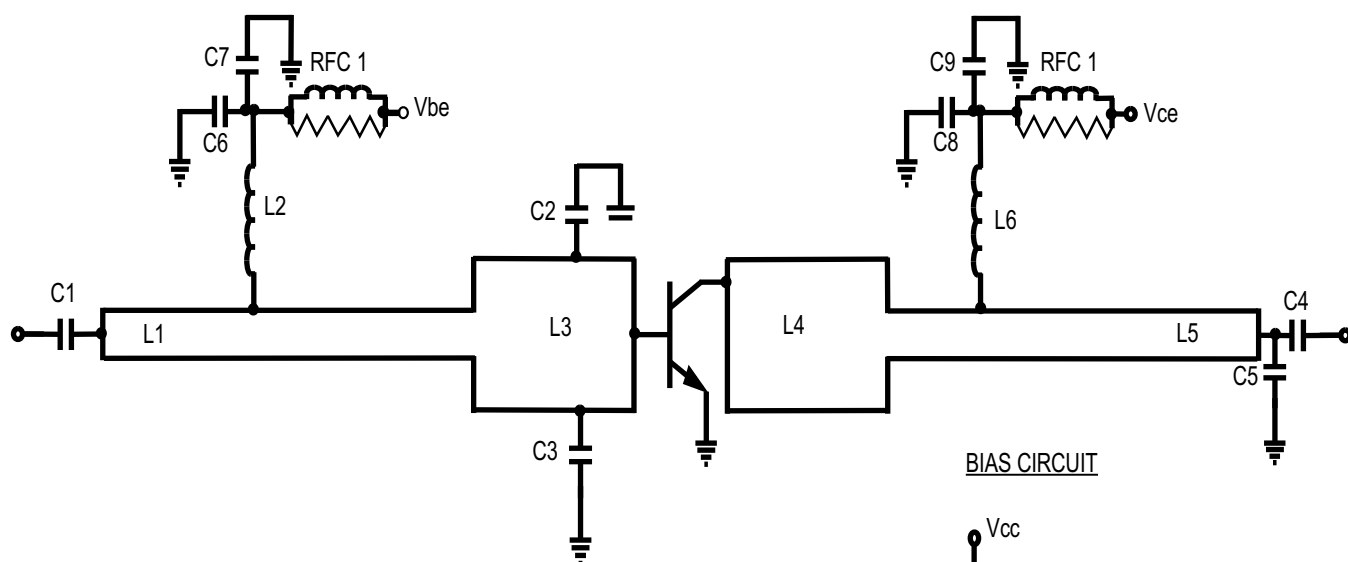


SERIES LOAD IMPEDANCE vs FREQUENCY

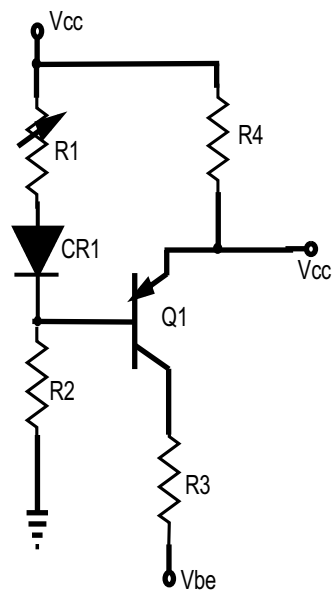




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BIAS CIRCUIT



C1,C4=100 ATC "B"

C2,C3= 8.2 pf ATC

C5= 2.0 pf

C6,C8= 1mF TANT

C7,C9= 1mF 50V

L2=3.3mH molded Ind.

L6= 100W Stripline

RFC1=5 Turns, 24Awg on 125ml Toroid

RFC2 in parallel with 15 1/2 Resistor

L5,L1= 50W Stripline 2" long

L4,L3= 34W Stripline 300 mils long

R1= 500 ohm Pot

R2= 4.7 Kohm 1/4 W

R3= 47 ohm 1/4 W

R4= 1 ohm 3 Watt, 1%

CR1= IN 4148

Q1= MJE 172

August 1996